



SEQUENCE LISTING

<110> Einat, et al

<120> GENES ASSOCIATED WITH MECHANICAL STRESS, EXPRESSION PRODUCTS THEREFROM, AND USES THEREOF

<130> 540579-2007.3

<140> 09/991,630

<141> 2001-11-06

<150> 09/905,129

<151> 2001-07-13

<150> 09/802,318

<151> 2001-03-08

<150> 09/729,485

<151> 2000-12-04

<160> 28

<170> PatentIn version 3.0

<210> 1

<211> 8883

<212> DNA

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<221> misc_feature

<222> (1)..(8883)

<223> 'n' can be any nucleotide 'a', 'c', 'g' or 't'.

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Gly Tyr Asn Ser Leu Thr Arg Leu Thr Glu Asn Asp Phe Asp Gly Leu
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Ser Lys Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Arg Val
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Ser Asp Lys Thr Phe Ser Gly Leu Gln Ser Leu Gln Val Leu Lys Met
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Ser Tyr Asn Lys Val Gln Ile Ile Arg Lys Asp Thr Phe Tyr Gly Leu
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His Asn Gly Thr Leu Tyr Phe Asn Asn Val Gly Met Ala Glu Glu	2075	2080	2085
Gly Asp Tyr Ile Cys Ser Ala Gln Asn Thr Leu Gly Lys Asp Glu	2090	2095	2100
Met Lys Val His Leu Thr Val Leu Thr Ala Ile Pro Arg Ile Arg	2105	2110	2115
Gln Ser Tyr Lys Thr Thr Met Arg Leu Arg Ala Gly Glu Thr Ala	2120	2125	2130
Val Leu Asp Cys Glu Val Thr Gly Glu Pro Lys Pro Asn Val Phe	2135	2140	2145
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Phe Thr Phe His Ala Asn Arg Thr Leu Ser Ile His Lys Val Lys	2165	2170	2175
Pro Leu Asp Ser Gly Asp Tyr Val Cys Val Ala Gln Asn Pro Ser	2180	2185	2190
Gly Asp Asp Thr Lys Thr Tyr Lys Leu Asp Ile Val Ser Lys Pro	2195	2200	2205
Pro Leu Ile Asn Gly Leu Tyr Ala Asn Lys Thr Val Ile Lys Ala	2210	2215	2220
Thr Ala Ile Arg His Ser Lys Lys Tyr Phe Asp Cys Arg Ala Asp	2225	2230	2235
Gly Ile Pro Ser Ser Gln Val Thr Trp Ile Met Pro Gly Asn Ile	2240	2245	2250
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Asn Gly Thr Leu Glu Met Arg Asn Ile Arg Leu Ser Asp Ser Ala	2270	2275	2280
Asp Phe Thr Cys Val Val Arg Ser Glu Gly Gly Glu Ser Val Leu	2285	2290	2295
Val Val Gln Leu Glu Val Leu Glu Met Leu Arg Arg Pro Thr Phe	2300	2305	2310

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2360						2365					2370			
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Ile His Trp Thr Arg Val	Ser Ser Gly Xaa Glu Ile	Ser Gln Gly
1655	1660	1665
Thr Gln Lys Ser Arg Phe	His Val Leu Pro Asn Gly	Thr Leu Ser
1670	1675	1680
Ile Gln Arg Val Ser Ile	Gln Asp Arg Gly Gln Tyr	Leu Cys Ser
1685	1690	1695
Ala Phe Asn Pro Leu Gly	Val Asp His Phe His Val	Ser Leu Ser
1700	1705	1710
Val Val Phe Tyr Pro Ala	Arg Ile Leu Asp Arg His	Val Lys Glu
1715	1720	1725
Ile Thr Val His Phe Gly	Ser Thr Val Glu Leu Lys	Cys Arg Val
1730	1735	1740
Glu Gly Met Pro Arg Pro	Thr Val Ser Trp Ile Leu	Ala Asn Gln
1745	1750	1755
Thr Val Val Ser Glu Thr	Ala Lys Gly Ser Arg Lys	Val Trp Val
1760	1765	1770
Thr Pro Asp Gly Thr Leu	Ile Ile Tyr Asn Leu Ser	Leu Tyr Asp
1775	1780	1785
Arg Gly Phe Tyr Lys Cys	Val Ala Ser Asn Pro Ser	Gly Gln Asp
1790	1795	1800
Ser Leu Leu Val Lys Ile	Gln Val Ile Thr Ala Pro	Pro Val Ile
1805	1810	1815
Ile Glu Gln Lys Arg Gln	Ala Ile Val Gly Val Leu	Gly Gly Ser

	1820					1825					1830				
Leu	Lys	Leu	Pro	Cys	Thr	Ala	Lys	Gly	Thr	Pro	Gln	Pro	Ser	Val	
	1835					1840					1845				
His	Trp	Val	Leu	Tyr	Asp	Gly	Thr	Glu	Leu	Lys	Pro	Leu	Gln	Leu	
	1850					1855					1860				
Thr	His	Ser	Arg	Phe	Phe	Leu	Tyr	Pro	Asn	Gly	Thr	Leu	Tyr	Ile	
	1865					1870					1875				
Arg	Ser	Ile	Ala	Pro	Ser	Val	Arg	Gly	Thr	Tyr	Glu	Cys	Ile	Ala	
	1880					1885					1890				
Thr	Ser	Ser	Ser	Gly	Ser	Glu	Arg	Arg	Val	Val	Ile	Leu	Thr	Val	
	1895					1900					1905				
Glu	Glu	Gly	Glu	Thr	Ile	Pro	Arg	Ile	Glu	Thr	Ala	Ser	Gln	Lys	
	1910					1915					1920				
Trp	Thr	Glu	Val	Asn	Leu	Gly	Glu	Lys	Leu	Leu	Leu	Asn	Cys	Ser	
	1925					1930					1935				
Ala	Thr	Gly	Asp	Pro	Lys	Pro	Arg	Ile	Ile	Trp	Arg	Leu	Pro	Ser	
	1940					1945					1950				
Lys	Ala	Val	Ile	Asp	Gln	Trp	His	Arg	Met	Gly	Ser	Arg	Ile	His	
	1955					1960					1965				
Val	Tyr	Pro	Asn	Gly	Ser	Leu	Val	Val	Gly	Ser	Val	Thr	Glu	Lys	
	1970					1975					1980				
Asp	Ala	Gly	Asp	Tyr	Leu	Cys	Val	Ala	Arg	Asn	Lys	Met	Gly	Asp	
	1985					1990					1995				
Asp	Leu	Val	Leu	Met	His	Val	Arg	Leu	Arg	Leu	Thr	Pro	Ala	Lys	
	2000					2005					2010				
Ile	Glu	Gln	Lys	Gln	Tyr	Phe	Lys	Lys	Gln	Val	Leu	His	Gly	Lys	
	2015					2020					2025				
Asp	Phe	Gln	Val	Asp	Cys	Lys	Ala	Ser	Gly	Ser	Pro	Val	Pro	Glu	
	2030					2035					2040				
Val	Ser	Trp	Ser	Leu	Pro	Asp	Gly	Thr	Val	Leu	Asn	Asn	Val	Ala	
	2045					2050					2055				
Gln	Ala	Asp	Asp	Ser	Gly	Tyr	Arg	Thr	Lys	Arg	Tyr	Thr	Leu	Phe	
	2060					2065					2070				
His	Asn	Gly	Thr	Leu	Tyr	Phe	Asn	Asn	Val	Gly	Met	Ala	Glu	Glu	
	2075					2080					2085				
Gly	Asp	Tyr	Ile	Cys	Ser	Ala	Gln	Asn	Thr	Leu	Gly	Lys	Asp	Glu	
	2090					2095					2100				
Met	Lys	Val	His	Leu	Thr	Val	Leu	Thr	Ala	Ile	Pro	Arg	Ile	Arg	

Gln Lys Pro Val Ile Leu Thr Tyr Glu Pro Gly Met Val Lys Ser		
2405	2410	2415
Val Ser Gly Glu Pro Leu Ser Leu His Cys Val Ser Asp Gly Ile		
2420	2425	2430
Pro Lys Pro Asn Val Lys Trp Thr Thr Pro Gly Gly His Val Ile		
2435	2440	2445
Asp Arg Pro Gln Val Asp Gly Lys Tyr Ile Leu His Glu Asn Gly		
2450	2455	2460
Thr Leu Val Ile Lys Ala Thr Thr Ala His Asp Gln Gly Asn Tyr		
2465	2470	2475
Ile Cys Arg Ala Gln Asn Ser Val Gly Gln Ala Val Ile Ser Val		
2480	2485	2490
Ser Val Met Val Val Ala Tyr Pro Pro Arg Ile Ile Asn Tyr Leu		
2495	2500	2505
Pro Arg Asn Met Leu Arg Arg Thr Gly Glu Ala Met Gln Leu His		
2510	2515	2520
Cys Val Ala Leu Gly Ile Pro Lys Pro Lys Val Thr Trp Glu Thr		
2525	2530	2535
Pro Arg His Ser Leu Leu Ser Lys Ala Thr Ala Arg Lys Pro His		
2540	2545	2550
Arg Ser Glu Met Leu His Pro Gln Gly Thr Leu Val Ile Gln Asn		
2555	2560	2565
Leu Gln Thr Ser Asp Ser Gly Val Tyr Lys Cys Arg Ala Gln Asn		
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Leu Leu Gly Thr Asp Tyr Ala Thr Thr Tyr Ile Gln Val Leu		
2585	2590	2595

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Val Ile Cys Leu Val Ala Thr Pro Gly Gly Lys Ala Cys Pro Arg Arg
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 Cys Ala Cys Tyr Met Pro Thr Glu Val His Cys Thr Phe Arg Tyr Leu
 35 40 45
 Thr Ser Ile Pro Asp Ser Ile Pro Pro Asn Val Glu Arg Ile Asn Leu
 50 55 60
 Gly Tyr Asn Ser Leu Val Arg Leu Met Glu Thr Asp Phe Ser Gly Leu
 65 70 75 80
 Thr Lys Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Thr Ile
 85 90 95
 Pro Asp Lys Thr Phe Ser Asp Leu Gln Ala Leu Gln Val Leu Lys Met
 100 105 110
 Ser Tyr Asn Lys Val Arg Lys Leu Gln Lys Asp Thr Phe Tyr Gly Leu
 115 120 125
 Arg Ser Leu Thr Arg Leu His Met Asp His Asn Asn Ile Glu Phe Ile
 130 135 140
 Asn Pro Glu Val Phe Tyr Gly Leu Asn Phe Leu Arg Leu Val His Leu
 145 150 155 160
 Glu Gly Asn Gln Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu
 165 170 175
 Ser Tyr Leu Gln Ile Phe Lys Ile Ser Phe Ile Lys Phe Leu Tyr Leu
 180 185 190
 Ser Asp Asn Phe Leu Thr Ser Leu Pro Gln Glu Met Val Ser Tyr Met
 195 200 205
 Pro Asp Leu Asp Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp
 210 215 220
 Cys His Leu Lys Trp Leu Ser Asp Trp Ile Gln Pro Asp Val Ile Lys
 225 230 235 240
 Cys Lys Lys Asp Arg Ser Pro Ser Ser Ala Gln Gln Cys Pro Leu Cys
 245 250 255
 Met Asn Pro Arg Thr Ser Lys Gly Lys Pro Leu Ala Met Val Ser Ala
 260 265 270
 Ala Ala Phe Gln Cys Ala Lys Pro Thr Ile Asp Ser Ser Leu Lys Ser
 275 280 285
 Lys Ser Leu Thr Ile Leu Glu Asp Ser Ser Ser Ala Phe Ile Ser Pro
 290 295 300
 Gln Gly Phe Met Ala Pro Phe Gly Ser Leu Thr Leu Asn Met Thr Asp
 305 310 315 320

204000-555555

Val	Asn	Val	Lys	Met	Leu	Ser	Ser	Thr	Thr	Asn	Lys	Leu	Leu	Leu	Glu
930															
Ser	Val	Asn	Thr	Thr	Asn	Ser	His	Gln	Thr	Ser	Val	Arg	Glu	Val	Ser
945					950					955					960
Glu	Pro	Arg	His	Asn	His	Phe	Tyr	Ser	His	Thr	Thr	Gln	Ile	Leu	Ser
				965						970				975	
Thr	Ser	Thr	Phe	Pro	Ser	Asp	Pro	His	Thr	Ala	Ala	His	Ser	Gln	Phe
			980						985					990	
Pro	Ile	Pro	Arg	Asn	Ser	Thr	Val	Asn	Ile	Pro	Leu	Phe	Arg	Arg	Phe
		995					1000							1005	
Gly	Arg	Gln	Arg	Lys	Ile	Gly	Gly	Arg	Gly	Arg	Ile	Ile	Ser	Pro	
1010						1015					1020				
Tyr	Arg	Thr	Pro	Val	Leu	Arg	Arg	His	Arg	Tyr	Ser	Ile	Phe	Arg	
1025						1030					1035				
Ser	Thr	Thr	Arg	Gly	Ser	Ser	Glu	Lys	Ser	Thr	Thr	Ala	Phe	Ser	
1040						1045					1050				
Ala	Thr	Val	Leu	Asn	Val	Thr	Cys	Leu	Ser	Cys	Leu	Pro	Arg	Glu	
1055						1060					1065				
Arg	Leu	Thr	Thr	Ala	Thr	Ala	Ala	Leu	Ser	Phe	Pro	Ser	Ala	Ala	
1070						1075					1080				
Pro	Ile	Thr	Phe	Pro	Lys	Ala	Asp	Ile	Ala	Arg	Val	Pro	Ser	Glu	
1085						1090					1095				
Glu	Ser	Thr	Thr	Leu	Val	Gln	Asn	Pro	Leu	Leu	Leu	Leu	Glu	Asn	
1100						1105					1110				
Lys	Pro	Ser	Val	Glu	Lys	Thr	Thr	Pro	Thr	Ile	Lys	Tyr	Phe	Arg	
1115						1120					1125				
Thr	Glu	Ile	Ser	Gln	Val	Thr	Pro	Thr	Gly	Ala	Val	Met	Thr	Tyr	
1130						1135					1140				
Ala	Pro	Thr	Ser	Ile	Pro	Met	Glu	Lys	Thr	His	Lys	Val	Asn	Ala	
1145						1150					1155				
Ser	Tyr	Pro	Arg	Val	Ser	Ser	Thr	Asn	Glu	Ala	Lys	Arg	Asp	Ser	
1160						1165					1170				
Val	Ile	Thr	Ser	Ser	Leu	Ser	Gly	Ala	Ile	Thr	Lys	Pro	Pro	Met	
1175						1180					1185				
Thr	Ile	Ile	Ala	Ile	Thr	Arg	Phe	Ser	Arg	Arg	Lys	Ile	Pro	Trp	
1190						1195					1200				
Gln	Gln	Asn	Phe	Val	Asn	Asn	His	Asn	Pro	Lys	Gly	Arg	Leu	Arg	
1205						1210					1215				

Asn	Gln	His	Lys	Val	Ser	Leu	Gln	Lys	Ser	Thr	Ala	Val	Met	Leu
1220						1225					1230			
Pro	Lys	Thr	Ser	Pro	Ala	Leu	Pro	Gln	Arg	Gln	Ser	Ser	Pro	Phe
1235						1240					1245			
His	Phe	Thr	Thr	Leu	Ser	Thr	Ser	Val	Met	Gln	Ile	Pro	Ser	Asn
1250						1255					1260			
Thr	Leu	Thr	Thr	Ala	His	His	Thr	Thr	Thr	Lys	Thr	His	Asn	Pro
1265						1270					1275			
Gly	Ser	Leu	Pro	Thr	Lys	Lys	Glu	Leu	Pro	Phe	Pro	Pro	Leu	Asn
1280						1285					1290			
Pro	Met	Leu	Pro	Ser	Ile	Ile	Ser	Lys	Asp	Ser	Ser	Thr	Lys	Ser
1295						1300					1305			
Ile	Ile	Ser	Thr	Gln	Thr	Ala	Ile	Pro	Ala	Thr	Thr	Pro	Thr	Phe
1310						1315					1320			
Pro	Ala	Ser	Val	Ile	Thr	Tyr	Glu	Thr	Gln	Thr	Glu	Arg	Ser	Arg
1325						1330					1335			
Ala	Gln	Thr	Ile	Gln	Arg	Glu	Gln	Glu	Pro	Gln	Lys	Lys	Asn	Arg
1340						1345					1350			
Thr	Asp	Pro	Asn	Ile	Ser	Pro	Asp	Gln	Ser	Ser	Gly	Phe	Thr	Thr
1355						1360					1365			
Pro	Thr	Ala	Met	Thr	Pro	Pro	Ala	Leu	Ala	Phe	Thr	His	Ser	Pro
1370						1375					1380			
Pro	Glu	Asn	Thr	Thr	Gly	Ile	Ser	Ser	Thr	Ile	Ser	Phe	His	Ser
1385						1390					1395			
Arg	Thr	Leu	Asn	Leu	Thr	Asp	Val	Ile	Glu	Glu	Leu	Ala	Gln	Ala
1400						1405					1410			
Ser	Thr	Gln	Thr	Leu	Lys	Ser	Thr	Ile	Ala	Ser	Glu	Thr	Thr	Leu
1415						1420					1425			
Ser	Ser	Lys	Ser	His	Gln	Ser	Thr	Thr	Thr	Arg	Lys	Ala	Ser	Leu
1430						1435					1440			
Asp	Thr	Pro	Ile	Pro	Pro	Phe	Leu	Ser	Ser	Ser	Ala	Thr	Leu	Met
1445						1450					1455			
Pro	Val	Pro	Ile	Ser	Pro	Pro	Phe	Thr	Gln	Arg	Ala	Val	Thr	Asp
1460						1465					1470			
Thr	Arg	Gly	Asp	Ser	His	Phe	Arg	Leu	Met	Thr	Asn	Thr	Val	Val
1475						1480					1485			
Lys	Leu	His	Glu	Ser	Ser	Arg	His	Asn	Leu	Gln	Met	Pro	Ser	Ser
1490						1495					1500			

Val	Ala	Ser	Asn	Pro	Gly	Gly	Gln	Asp	Ser	Leu	Leu	Val	Lys	Ile
1790						1795					1800			
Gln	Val	Ile	Ala	Ala	Pro	Pro	Val	Ile	Leu	Glu	Gln	Arg	Arg	Gln
1805						1810					1815			
Val	Ile	Val	Gly	Thr	Trp	Gly	Glu	Ser	Leu	Lys	Leu	Pro	Cys	Thr
1820						1825					1830			
Ala	Lys	Gly	Thr	Pro	Gln	Pro	Ser	Val	Tyr	Trp	Val	Leu	Ser	Asp
1835						1840					1845			
Gly	Thr	Glu	Val	Lys	Pro	Leu	Gln	Phe	Thr	Asn	Ser	Lys	Leu	Phe
1850						1855					1860			
Leu	Phe	Ser	Asn	Gly	Thr	Leu	Tyr	Ile	Arg	Asn	Leu	Ala	Ser	Ser
1865						1870					1875			
Asp	Arg	Gly	Thr	Tyr	Glu	Cys	Ile	Ala	Thr	Ser	Ser	Thr	Gly	Ser
1880						1885					1890			
Glu	Arg	Arg	Val	Val	Met	Leu	Thr	Met	Glu	Glu	Arg	Val	Thr	Ser
1895						1900					1905			
Pro	Arg	Ile	Glu	Ala	Ala	Ser	Gln	Lys	Arg	Thr	Glu	Val	Asn	Phe
1910						1915					1920			
Gly	Asp	Lys	Leu	Leu	Leu	Asn	Cys	Ser	Ala	Thr	Gly	Glu	Pro	Lys
1925						1930					1935			
Pro	Gln	Ile	Met	Trp	Arg	Leu	Pro	Ser	Lys	Ala	Val	Val	Asp	Gln
1940						1945					1950			
Gly	Ser	Trp	Ile	His	Val	Tyr	Pro	Asn	Gly	Ser	Leu	Phe	Ile	Gly
1955						1960					1965			
Ser	Val	Thr	Glu	Lys	Asp	Ser	Gly	Val	Tyr	Leu	Cys	Val	Ala	Arg
1970						1975					1980			
Asn	Lys	Met	Gly	Asp	Asp	Leu	Ile	Leu	Met	His	Val	Ser	Leu	Arg
1985						1990					1995			
Leu	Lys	Pro	Ala	Lys	Ile	Asp	His	Lys	Gln	Tyr	Phe	Arg	Lys	Gln
2000						2005					2010			
Val	Leu	His	Gly	Lys	Asp	Phe	Gln	Val	Asp	Cys	Lys	Ala	Ser	Gly
2015						2020					2025			
Ser	Pro	Val	Pro	Glu	Ile	Ser	Trp	Ser	Leu	Pro	Asp	Gly	Thr	Met
2030						2035					2040			
Ile	Asn	Asn	Ala	Met	Gln	Ala	Asp	Asp	Ser	Gly	His	Arg	Thr	Arg
2045						2050					2055			
Arg	Tyr	Thr	Leu	Phe	Asn	Asn	Gly	Thr	Leu	Tyr	Phe	Asn	Lys	Val
2060						2065					2070			

Gly	Val	Ala	Glu	Glu	Gly	Asp	Tyr	Thr	Cys	Tyr	Ala	Gln	Asn	Thr
2075						2080					2085			
Leu	Gly	Lys	Asp	Glu	Met	Lys	Val	His	Leu	Thr	Val	Ile	Thr	Ala
2090						2095					2100			
Ala	Pro	Arg	Ile	Arg	Gln	Ser	Asn	Lys	Thr	Asn	Lys	Arg	Ile	Lys
2105						2110					2115			
Ala	Gly	Asp	Thr	Ala	Val	Leu	Asp	Cys	Glu	Val	Thr	Gly	Asp	Pro
2120						2125					2130			
Lys	Pro	Lys	Ile	Phe	Trp	Leu	Leu	Pro	Ser	Asn	Asp	Met	Ile	Ser
2135						2140					2145			
Phe	Ser	Ile	Asp	Arg	Tyr	Thr	Phe	His	Ala	Asn	Gly	Ser	Leu	Thr
2150						2155					2160			
Ile	Asn	Lys	Val	Lys	Leu	Leu	Asp	Ser	Gly	Glu	Tyr	Val	Cys	Val
2165						2170					2175			
Ala	Arg	Asn	Pro	Ser	Gly	Asp	Asp	Thr	Lys	Met	Tyr	Lys	Leu	Asp
2180						2185					2190			
Val	Val	Ser	Lys	Pro	Pro	Leu	Ile	Asn	Gly	Leu	Tyr	Thr	Asn	Arg
2195						2200					2205			
Thr	Val	Ile	Lys	Ala	Thr	Ala	Val	Arg	His	Ser	Lys	Lys	His	Phe
2210						2215					2220			
Asp	Cys	Arg	Ala	Glu	Gly	Thr	Pro	Ser	Pro	Glu	Val	Met	Trp	Ile
2225						2230					2235			
Met	Pro	Asp	Asn	Ile	Phe	Leu	Thr	Ala	Pro	Tyr	Tyr	Gly	Ser	Arg
2240						2245					2250			
Ile	Thr	Val	His	Lys	Asn	Gly	Thr	Leu	Glu	Ile	Arg	Asn	Val	Arg
2255						2260					2265			
Leu	Ser	Asp	Ser	Ala	Asp	Phe	Ile	Cys	Val	Ala	Arg	Asn	Glu	Gly
2270						2275					2280			
Gly	Glu	Ser	Val	Leu	Val	Val	Gln	Leu	Glu	Val	Leu	Glu	Met	Leu
2285						2290					2295			
Arg	Arg	Pro	Thr	Phe	Arg	Asn	Pro	Phe	Asn	Glu	Lys	Ile	Val	Ala
2300						2305					2310			
Gln	Leu	Gly	Lys	Ser	Thr	Ala	Leu	Asn	Cys	Ser	Val	Asp	Gly	Asn
2315						2320					2325			
Pro	Pro	Pro	Glu	Ile	Ile	Trp	Ile	Leu	Pro	Asn	Gly	Thr	Arg	Phe
2330						2335					2340			
Ser	Asn	Gly	Pro	Gln	Ser	Tyr	Gln	Tyr	Leu	Ile	Ala	Ser	Asn	Gly
2345						2350					2355			

Ser Phe Ile Ile Ser Lys Thr Thr Arg Glu Asp Ala Gly Lys Tyr
2360 2365 2370

Arg Cys Ala Ala Arg Asn Lys Val Gly Tyr Ile Glu Lys Leu Val
2375 2380 2385

Ile Leu Glu Ile Gly Gln Lys Pro Val Ile Leu Thr Tyr Ala Pro
2390 2395 2400

Gly Thr Val Lys Gly Ile Ser Gly Glu Ser Leu Ser Leu His Cys
2405 2410 2415

Val Ser Asp Gly Ile Pro Lys Pro Asn Ile Lys Trp Thr Met Pro
2420 2425 2430

Ser Gly Tyr Val Val Asp Arg Pro Gln Ile Asn Gly Lys Tyr Ile
2435 2440 2445

Leu His Asp Asn Gly Thr Leu Val Ile Lys Glu Ala Thr Ala Tyr
2450 2455 2460

Asp Arg Gly Asn Tyr Ile Cys Lys Ala Gln Asn Ser Val Gly His
2465 2470 2475

Thr Leu Ile Thr Val Pro Val Met Ile Val Ala Tyr Pro Pro Arg
2480 2485 2490

Ile Thr Asn Arg Pro Pro Arg Ser Ile Val Thr Arg Thr Gly Ala
2495 2500 2505

Ala Phe Gln Leu His Cys Val Ala Leu Gly Val Pro Lys Pro Glu
2510 2515 2520

Ile Thr Trp Glu Met Pro Asp His Ser Leu Leu Ser Thr Ala Ser
2525 2530 2535

Lys Glu Arg Thr His Gly Ser Glu Gln Leu His Leu Gln Gly Thr
2540 2545 2550

Leu Val Ile Gln Asn Pro Gln Thr Ser Asp Ser Gly Ile Tyr Lys
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Cys Thr Ala Lys Asn Pro Leu Gly Ser Asp Tyr Ala Ala Thr Tyr
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Ile Gln Val
2585

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Ala Ile Cys Leu Val Val Thr Pro Gly Ser Arg Val Cys Pro Arg Arg
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Cys Ala Cys Tyr Val Pro Thr Glu Val His Cys Thr Phe Arg Asp Leu
35 40 45

Thr Ser Ile Pro Asp Gly Pro Ala Asn Val Glu Arg Val Asn Leu Gly
50 55 60

Tyr Asn Ser Leu Thr Arg Leu Thr Glu Asn Asp Phe Ser Gly Leu Ser
65 70 75 80

Arg Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Arg Val Ser
85 90 95

Asp Lys Thr Phe Ser Gly Leu Gln Ser Leu Gln Val Leu Lys Met Ser
100 105 110

Tyr Asn Lys Val Gln Ile Ile Glu Lys Asp Thr Leu Tyr Gly Leu Arg
115 120 125

Ser Leu Thr Arg Leu His Leu Asp His Asn Asn Ile Glu Phe Ile Asn
130 135 140

Pro Glu Ala Phe Tyr Gly Leu Thr Leu Leu Arg Leu Val His Leu Glu
145 150 155 160

Gly Asn Arg Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu Ser
165 170 175

Tyr Leu Gln Ile Phe Lys Thr Ser Phe Ile Lys Xaa Leu Tyr Leu Tyr
180 185 190

Asp Asn Phe Thr Ser Leu Pro Lys Glu Met Val Ser Ser Met Pro Asn
195 200 205

Leu Glu Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp Cys His
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Leu Lys Trp Leu Ser Glu Trp Met Gln Gly Asn Pro
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895

Lys Asp Ser Val Glu Thr Thr Pro Leu Pro Ser Pro Leu Ser Thr

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Val	Ser	Trp	Ser	Leu	Pro	Asp	Gly	Thr	Val	Leu	Asn	Asn	Val	Ala	
	2045					2050					2055				
Gln	Ala	Asp	Asp	Ser	Gly	Tyr	Arg	Thr	Lys	Arg	Tyr	Thr	Leu	Phe	
	2060					2065					2070				
His	Asn	Gly	Thr	Leu	Tyr	Phe	Asn	Asn	Val	Gly	Met	Ala	Glu	Glu	
	2075					2080					2085				
Gly	Asp	Tyr	Ile	Cys	Ser	Ala	Gln	Asn	Thr	Leu	Gly	Lys	Asp	Glu	
	2090					2095					2100				
Met	Lys	Val	His	Leu	Thr	Val	Leu	Thr	Ala	Ile	Pro	Arg	Ile	Arg	
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Gln	Ser	Tyr	Lys	Thr	Thr	Met	Arg	Leu	Arg	Ala	Gly	Glu	Thr	Ala	
	2120					2125					2130				
Val	Leu	Asp	Cys	Glu	Val	Thr	Gly	Glu	Pro	Lys	Pro	Asn	Val	Phe	
	2135					2140					2145				
Trp	Leu	Leu	Pro	Ser	Asn	Asn	Val	Ile	Ser	Phe	Ser	Asn	Asp	Arg	
	2150					2155					2160				
Phe	Thr	Phe	His	Ala	Asn	Arg	Thr	Leu	Ser	Ile	His	Lys	Val	Lys	
	2165					2170					2175				
Pro	Leu	Asp	Ser	Gly	Asp	Tyr	Val	Cys	Val	Ala	Gln	Asn	Pro	Ser	
	2180					2185					2190				
Gly	Asp	Asp	Thr	Lys	Thr	Tyr	Lys	Leu	Asp	Ile	Val	Ser	Lys	Pro	
	2195					2200					2205				
Pro	Leu	Ile	Asn	Gly	Leu	Tyr	Ala	Asn	Lys	Thr	Val	Ile	Lys	Ala	
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Thr	Ala	Ile	Arg	His	Ser	Lys	Lys	Tyr	Phe	Asp	Cys	Arg	Ala	Asp	
	2225					2230					2235				
Gly	Ile	Pro	Ser	Ser	Gln	Val	Thr	Trp	Ile	Met	Pro	Gly	Asn	Ile	
	2240					2245					2250				
Phe	Leu	Pro	Ala	Pro	Tyr	Phe	Gly	Ser	Arg	Val	Thr	Val	His	Pro	
	2255					2260					2265				
Asn	Gly	Thr	Leu	Glu	Met	Arg	Asn	Ile	Arg	Leu	Ser	Asp	Ser	Ala	
	2270					2275					2280				
Asp	Phe	Thr	Cys	Val	Val	Arg	Ser	Glu	Gly	Gly	Glu	Ser	Val	Leu	
	2285					2290					2295				
Val	Val	Gln	Leu	Glu	Val	Leu	Glu	Met	Leu	Arg	Arg	Pro	Thr	Phe	
	2300					2305					2310				
Arg	Asn	Pro	Phe	Asn	Glu	Lys	Val	Ile	Ala	Gln	Ala	Gly	Lys	Pro	

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Met Lys Val Lys Gly Arg Gly Ile Thr Cys Leu Leu Val Ser Phe Ala
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Cys Ala Cys Tyr Met Pro Thr Glu Val His Cys Thr Phe Arg Tyr Leu
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Gly Tyr Asn Ser Leu Val Arg Leu Met Glu Thr Asp Phe Ser Gly Leu
65 70 75 80

Pro Asp Lys Thr Phe Ser Asp Leu Gln Ala Leu Gln Val Leu Lys Met
100 105 110

Ser Tyr Asn Lys Val Arg Lys Leu Gln Lys Asp Thr Phe Tyr Gly Leu
115 120 125

Arg Ser Leu Thr Arg Leu His Met Asp His Asn Asn Ile Glu Phe Ile
130 135 140

Asn Pro Glu Val Phe Tyr Gly Leu Asn Phe Leu Arg Leu Val His Leu
145 150 155 160

Glu Gly Asn Gln Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu
165 170 175

Ser Tyr Leu Gln Ile Phe Lys Ile Ser Phe Ile Lys Phe Leu Tyr Leu
180 185 190

Ser Asp Asn Phe Leu Thr Ser Leu Pro Gln Glu Met Val Ser Tyr Met
195 200 205

Pro Asp Leu Asp Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp
210 215 220

Cys His Leu Lys Trp Leu Ser Asp Trp Ile Gln Pro Asp Val Ile Lys
225 230 235 240

Cys Lys Lys Asp Arg Ser Pro Ser Ser Ala Gln Gln Cys Pro Leu Cys
245 250 255

Met Asn Pro Arg Thr Ser Lys Gly Lys Pro Leu Ala Met Val Ser Ala
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Ala Ala Phe Gln Cys Ala Lys Pro Thr Ile Asp Ser Ser Leu Lys Ser
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Lys Ser Leu Thr Ile Leu Glu Asp Ser Ser Ser Ala Phe Ile Ser Pro
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Gln Gly Phe Met Ala Pro Phe Gly Ser Leu Thr Leu Asn Met Thr Asp
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Gln Ser Gly Asn Glu Ala Asn Met Val Cys Ser Ile Gln Lys Pro Ser
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Arg Thr Ser Pro Ile Ala Phe Thr Glu Glu Asn Asp Tyr Ile Val Leu
340 345 350

Asn Thr Ser Phe Ser Thr Phe Leu Val Cys Asn Ile Asp Tyr Gly His
355 360 365

Ile Gln Pro Val Trp Gln Ile Leu Ala Leu Tyr Ser Asp Ser Pro Leu
370 375 380

Ile Leu Glu Arg Ser His Leu Leu Ser Glu Thr Pro Gln Leu Tyr Tyr
385 390 395 400

Lys Tyr Lys Gln Val Ala Pro Lys Pro Glu Asp Ile Phe Thr Asn Ile
405 410 415

Glu Ala Asp Leu Arg Ala Asp Pro Ser Trp Leu Met Gln Asp Gln Ile
420 425 430

Ser Leu Gln Leu Asn Arg Thr Ala Thr Thr Phe Ser Thr Leu Gln Ile
435 440 445

Gln Tyr Ser Ser Asp Ala Gln Ile Thr Leu Pro Arg Ala Glu Met Arg
450 455 460

Pro Val Lys His Lys Trp Thr Met Ile Ser Arg Asp Asn Asn Thr Lys
465 470 475 480

Leu Glu His Thr Val Leu Val Gly Gly Thr Val Gly Leu Asn Cys Pro
485 490 495

Gly Gln Gly Asp Pro Thr Pro His Val Asp Trp Leu Leu Ala Asp Gly
500 505 510

Ser Lys Val Arg Ala Pro Tyr Val Ser Glu Asp Gly Arg Ile Leu Ile
515 520 525

Asp Lys Ser Gly Lys Leu Glu Leu Gln Met Ala Asp Ser Phe Asp Thr
530 535 540

Gly Val Tyr His Cys Ile Ser Ser Asn Tyr Asp Asp Ala Asp Ile Leu
545 550 555 560

Thr Tyr Arg Ile Thr Val Val Glu Pro Leu Val Glu Ala Tyr Gln Glu
565 570 575

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Gln Gly Thr Thr Asn Gln His Ser Ser Thr Val Phe Pro Leu Leu Leu
885 890 895

Gly Ala Thr Glu Phe Gln Asp Ser Asp Gln Met Gly Arg Gly Arg Glu
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His Phe Gln Ser Arg Pro Pro Ile Thr Val Arg Thr Met Ile Lys Asp
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Val Asn Val Lys Met Leu Ser Ser Thr Thr Asn Lys Leu Leu Leu Glu
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Ser Val Asn Thr Thr Asn Ser His Gln Thr Ser Val Arg Glu Val Ser
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Glu Pro Arg His Asn His Phe Tyr Ser His Thr Thr Gln Ile Leu Ser
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Thr Ser Thr Phe Pro Ser Asp Pro His Thr Ala Ala His Ser Gln Phe
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Pro Ile Pro Arg Asn Ser Thr Val Asn Ile Pro Leu Phe Arg Arg Phe
995 1000 1005

Gly Arg Gln Arg Lys Ile Gly Gly Arg Gly Arg Ile Ile Ser Pro
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Tyr Arg Thr Pro Val Leu Arg Arg His Arg Tyr Ser Ile Phe Arg
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Ser Thr Thr Arg Gly Ser Ser Glu Lys Ser Thr Thr Ala Phe Ser
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Ala Thr Val Leu Asn Val Thr Cys Leu Ser Cys Leu Pro Arg Glu
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Arg Leu Thr Thr Ala Thr Ala Ala Leu Ser Phe Pro Ser Ala Ala
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Pro Ile Thr Phe Pro Lys Ala Asp Ile Ala Arg Val Pro Ser Glu
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Glu Ser Thr Thr Leu Val Gln Asn Pro Leu Leu Leu Leu Glu Asn
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Lys Pro Ser Val Glu Lys Thr Thr Pro Thr Ile Lys Tyr Phe Arg
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Thr Glu Ile Ser Gln Val Thr Pro Thr Gly Ala Val Met Thr Tyr
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Ala Pro Thr Ser Ile Pro Met Glu Lys Thr His Lys Val Asn Ala
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Ser Tyr Pro Arg Val Ser Ser Thr Asn Glu Ala Lys Arg Asp Ser
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Cys Ala Cys Tyr Val Pro Thr Glu Val His Cys Thr Phe Arg Asp Leu
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Thr Ser Ile Pro Asp Gly Pro Ala Asn Val Glu Arg Val Asn Leu Gly
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Tyr Asn Ser Leu Thr Arg Leu Thr Glu Asn Asp Phe Ser Gly Leu Ser
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Arg Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Arg Val Ser
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Asp Lys Thr Phe Ser Gly Leu Gln Ser Leu Gln Val Leu Lys Met Ser
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Tyr Asn Lys Val Gln Ile Ile Glu Lys Asp Thr Leu Tyr Gly Leu Arg
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Ser Leu Thr Arg Leu His Leu Asp His Asn Asn Ile Glu Phe Ile Asn
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Pro Glu Ala Phe Tyr Gly Leu Thr Leu Leu Arg Leu Val His Leu Glu
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Gly Asn Arg Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu Ser
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Tyr Leu Gln Ile Phe Lys Thr Ser Phe Ile Lys Xaa Leu Tyr Leu Tyr
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Asp Asn Phe Thr Ser Leu Pro Lys Glu Met Val Ser Ser Met Pro Asn
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Leu Glu Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp Cys His
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Leu Lys Trp Leu Ser Glu Trp Met Gln Gly Asn Pro
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Gln	Ser	Gly	Asn	Glu	Ala	Asn	Met	Val	Cys	Ser	Ile	Gln	Lys	Pro	Ser	
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Lys	Tyr	Lys	Gln	Val	Ala	Pro	Lys	Pro	Glu	Asp	Ile	Phe	Thr	Asn	Ile	
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Glu	Ala	Asp	Leu	Arg	Ala	Asp	Pro	Ser	Trp	Leu	Met	Gln	Asp	Gln	Ile	
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Ser	Leu	Gln	Leu	Asn	Arg	Thr	Ala	Thr	Thr	Phe	Ser	Thr	Leu	Gln	Ile	
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Pro	Val	Lys	His	Lys	Trp	Thr	Met	Ile	Ser	Arg	Asp	Asn	Asn	Thr	Lys	
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Leu	Glu	His	Thr	Val	Leu	Val	Gly	Gly	Thr	Val	Gly	Leu	Asn	Cys	Pro	
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Ser	Lys	Val	Arg	Ala	Pro	Tyr	Val	Ser	Glu	Asp	Gly	Arg	Ile	Leu	Ile	
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Gly	Val	Tyr	His	Cys	Ile	Ser	Ser	Asn	Tyr	Asp	Asp	Ala	Asp	Ile	Leu	
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Thr	Tyr	Arg	Ile	Thr	Val	Val	Glu	Pro	Leu	Val	Glu	Ala	Tyr	Gln	Glu	

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Thr Thr Ala Met Ser Lys Asn Ile Asn Pro Thr Met Ser Ser Gln Ile

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Gly Ala Thr Glu Phe Gln Asp Ser Asp Gln Met Gly Arg Gly Arg Glu						
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His Phe Gln Ser Arg Pro Pro Ile Thr Val Arg Thr Met Ile Lys Asp						
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Val Asn Val Lys Met Leu Ser Ser Thr Thr Asn Lys Leu Leu Leu Glu						
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Ser Val Asn Thr Thr Asn Ser His Gln Thr Ser Val Arg Glu Val Ser						
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Glu Pro Arg His Asn His Phe Tyr Ser His Thr Thr Gln Ile Leu Ser						
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2015 2020 2025

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Val Pro Ala Gly Ile Ala Arg His Val Glu Arg Ile Asn Leu Gly Phe
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Leu Glu Leu Leu Met Ile His Gly Asn Glu Ile Pro Ser Ile Pro Asp
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Gly Ala Leu Arg Asp Leu Ser Ser Leu Gln Val Phe Lys Phe Ser Tyr
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Leu Met Arg Leu His Ile Asp His Asn Lys Ile Glu Phe Ile His Pro
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Gln Ala Phe Asn Gly Leu Thr Ser Leu Arg Leu Leu His Leu Glu Gly
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325 330 335

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 gttcccaagc cagaaatcac atgggagatg cctgaccact cccttctctc aacggcaagt 7620
 aaagagagga cacatggaag tgagcagctt cacttacaag gtaccctagt cattcagaat 7680
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 <211> 2589
 <212> PRT
 <213> homo sapien

<400> 24

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Val Ile Cys Leu Val Ala Thr Pro Gly Gly Lys Ala Cys Pro Arg Arg
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Cys Ala Cys Tyr Met Pro Thr Glu Val His Cys Thr Phe Arg Tyr Leu
35 40 45

Thr Ser Ile Pro Asp Ser Ile Pro Pro Asn Val Glu Arg Ile Asn Leu
50 55 60

Gly Tyr Asn Ser Leu Val Arg Leu Met Glu Thr Asp Phe Ser Gly Leu
65 70 75 80

Thr Lys Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Thr Ile
85 90 95

Pro Asp Lys Thr Phe Ser Asp Leu Gln Ala Leu Gln Val Leu Lys Met
100 105 110

Ser Tyr Asn Lys Val Arg Lys Leu Gln Lys Asp Thr Phe Tyr Gly Leu

115

120

125

Arg Ser Leu Thr Arg Leu His Met Asp His Asn Asn Ile Glu Phe Ile
130 135 140

Asn Pro Glu Val Phe Tyr Gly Leu Asn Phe Leu Arg Leu Val His Leu
145 150 155 160

Glu Gly Asn Gln Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu
165 170 175

Ser Tyr Leu Gln Ile Phe Lys Ile Ser Phe Ile Lys Phe Leu Tyr Leu
180 185 190

Ser Asp Asn Phe Leu Thr Ser Leu Pro Gln Glu Met Val Ser Tyr Met
195 200 205

Pro Asp Leu Asp Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp
210 215 220

Cys His Leu Lys Trp Leu Ser Asp Trp Ile Gln Glu Lys Pro Asp Val
225 230 235 240

Ile Lys Cys Lys Lys Asp Arg Ser Pro Ser Ser Ala Gln Gln Cys Pro
245 250 255

Leu Cys Met Asn Pro Arg Thr Ser Lys Gly Lys Pro Leu Ala Met Val
260 265 270

Ser Ala Ala Ala Phe Gln Cys Ala Lys Pro Thr Ile Asp Ser Ser Leu
275 280 285

Lys Ser Lys Ser Leu Thr Ile Leu Glu Asp Ser Ser Ser Ala Phe Ile
290 295 300

Ser Pro Gln Gly Phe Met Ala Pro Phe Gly Ser Leu Thr Leu Asn Met
305 310 315 320

Thr Asp Gln Ser Gly Asn Glu Ala Asn Met Val Cys Ser Ile Gln Lys
325 330 335

Pro Ser Arg Thr Ser Pro Ile Ala Phe Thr Glu Glu Asn Asp Tyr Ile
340 345 350

Val Leu Asn Thr Ser Phe Ser Thr Phe Leu Val Cys Asn Ile Asp Tyr
 355 360 365

Gly His Ile Gln Pro Val Trp Gln Ile Leu Ala Leu Tyr Ser Asp Ser
 370 375 380

Pro Leu Ile Leu Glu Arg Ser His Leu Leu Ser Glu Thr Pro Gln Leu
 385 390 395 400

Tyr Tyr Lys Tyr Lys Gln Val Ala Pro Lys Pro Glu Asp Ile Phe Thr
 405 410 415

Asn Ile Glu Ala Asp Leu Arg Ala Asp Pro Ser Trp Leu Met Gln Asp
 420 425 430

Gln Ile Ser Leu Gln Leu Asn Arg Thr Ala Thr Thr Phe Ser Thr Leu
 435 440 445

Gln Ile Gln Tyr Ser Ser Asp Ala Gln Ile Thr Leu Pro Arg Ala Glu
 450 455 460

Met Arg Pro Val Lys His Lys Trp Thr Met Ile Ser Arg Asp Asn Asn
 465 470 475 480

Thr Lys Leu Glu His Thr Val Leu Val Gly Gly Thr Val Gly Leu Asn
 485 490 495

Cys Pro Gly Gln Gly Asp Pro Thr Pro His Val Asp Trp Leu Leu Ala
 500 505 510

Asp Gly Ser Lys Val Arg Ala Pro Tyr Val Ser Glu Asp Gly Arg Ile
 515 520 525

Leu Ile Asp Lys Ser Gly Lys Leu Glu Leu Gln Met Ala Asp Ser Phe
 530 535 540

Asp Thr Gly Val Tyr His Cys Ile Ser Ser Asn Tyr Asp Asp Ala Asp
 545 550 555 560

Ile Leu Thr Tyr Arg Ile Thr Val Val Glu Pro Leu Val Glu Ala Tyr
 565 570 575

500 505 510 515 520 525 530 535 540 545 550 555 560 565 570 575

1035

Met Leu Pro Lys Thr Ser Pro Ala Leu Pro Gln Arg Gln Ser Ser
1235 1240 1245

Pro Phe His Phe Thr Thr Leu Ser Thr Ser Val Met Gln Ile Pro
1250 1255 1260

Ser Asn Thr Leu Thr Thr Ala His His Thr Thr Thr Lys Thr His
1265 1270 1275

Asn Pro Gly Ser Leu Pro Thr Lys Lys Glu Leu Pro Phe Pro Pro
1280 1285 1290

Leu Asn Pro Met Leu Pro Ser Ile Ile Ser Lys Asp Ser Ser Thr
1295 1300 1305

Lys Ser Ile Ile Ser Thr Gln Thr Ala Ile Pro Ala Thr Thr Pro
1310 1315 1320

Thr Phe Pro Ala Ser Val Ile Thr Tyr Glu Thr Gln Thr Glu Arg
1325 1330 1335

Ser Arg Ala Gln Thr Ile Gln Arg Glu Gln Glu Pro Gln Lys Lys
1340 1345 1350

Asn Arg Thr Asp Pro Asn Ile Ser Pro Asp Gln Ser Ser Gly Phe
1355 1360 1365

Thr Thr Pro Thr Ala Met Thr Pro Pro Ala Leu Ala Phe Thr His
1370 1375 1380

Ser Pro Pro Glu Asn Thr Thr Gly Ile Ser Ser Thr Ile Ser Phe
1385 1390 1395

His Ser Arg Thr Leu Asn Leu Thr Asp Val Ile Glu Glu Leu Ala
1400 1405 1410

Gln Ala Ser Thr Gln Thr Leu Lys Ser Thr Ile Ala Ser Glu Thr
1415 1420 1425

Thr Leu Ser Ser Lys Ser His Gln Ser Thr Thr Thr Arg Lys Ala
1430 1435 1440

Ser Leu Asp Thr Pro Ile Pro Pro Phe Leu Ser Ser Ser Ala Thr
1445 1450 1455

Leu Met Pro Val Pro Ile Ser Pro Pro Phe Thr Gln Arg Ala Val
1460 1465 1470

Thr Asp Thr Arg Gly Asp Ser His Phe Arg Leu Met Thr Asn Thr
1475 1480 1485

Val Val Lys Leu His Glu Ser Ser Arg His Asn Leu Gln Met Pro
1490 1495 1500

Ser Ser Gln Leu Glu Pro Leu Thr Ser Ser Thr Ser Asn Leu Leu
1505 1510 1515

His Ser Thr Pro Met Pro Ala Leu Thr Thr Val Lys Ser Gln Asn
1520 1525 1530

Ser Lys Leu Thr Pro Ser Pro Trp Ala Glu Tyr Gln Phe Trp His
1535 1540 1545

Lys Pro Tyr Ser Asp Ile Ala Glu Lys Gly Lys Lys Pro Glu Val
1550 1555 1560

Ser Met Leu Ala Thr Thr Gly Leu Ser Glu Ala Thr Thr Leu Val
1565 1570 1575

Ser Asp Trp Asp Gly Gln Lys Asn Thr Lys Lys Ser Asp Phe Asp
1580 1585 1590

Lys Lys Pro Val Gln Glu Ala Thr Thr Ser Lys Leu Leu Pro Phe
1595 1600 1605

Asp Ser Leu Ser Arg Tyr Ile Phe Glu Lys Pro Arg Ile Val Gly
1610 1615 1620

Gly Lys Ala Ala Ser Phe Thr Ile Pro Ala Asn Ser Asp Ala Phe
1625 1630 1635

Leu Pro Cys Glu Ala Val Gly Asn Pro Leu Pro Thr Ile His Trp
1640 1645 1650

Thr Arg Val Ser Gly Leu Asp Leu Ser Arg Gly Asn Gln Asn Ser
1655 1660 1665

Thr Ala Ala Pro Arg Ile Arg Gln Ser Asn Lys Thr Asn Lys Arg
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Ile Lys Ala Gly Asp Thr Ala Val Leu Asp Cys Glu Val Thr Gly
2120 2125 2130

Asp Pro Lys Pro Lys Ile Phe Trp Leu Leu Pro Ser Asn Asp Met
2135 2140 2145

Ile Ser Phe Ser Ile Asp Arg Tyr Thr Phe His Ala Asn Gly Ser
2150 2155 2160

Leu Thr Ile Asn Lys Val Lys Leu Leu Asp Ser Gly Glu Tyr Val
2165 2170 2175

Cys Val Ala Arg Asn Pro Ser Gly Asp Asp Thr Lys Met Tyr Lys
2180 2185 2190

Leu Asp Val Val Ser Lys Pro Pro Leu Ile Asn Gly Leu Tyr Thr
2195 2200 2205

Asn Arg Thr Val Ile Lys Ala Thr Ala Val Arg His Ser Lys Lys
2210 2215 2220

His Phe Asp Cys Arg Ala Glu Gly Thr Pro Ser Pro Glu Val Met
2225 2230 2235

Trp Ile Met Pro Asp Asn Ile Phe Leu Thr Ala Pro Tyr Tyr Gly
2240 2245 2250

Ser Arg Ile Thr Val His Lys Asn Gly Thr Leu Glu Ile Arg Asn
2255 2260 2265

Val Arg Leu Ser Asp Ser Ala Asp Phe Ile Cys Val Ala Arg Asn
2270 2275 2280

Glu Gly Gly Glu Ser Val Leu Val Val Gln Leu Glu Val Leu Glu
2285 2290 2295

Met Leu Arg Arg Pro Thr Phe Arg Asn Pro Phe Asn Glu Lys Ile
2300 2305 2310

Val Ala Gln Leu Gly Lys Ser Thr Ala Leu Asn Cys Ser Val Asp
2315 2320 2325

Gly Asn Pro Pro Pro Glu Ile Ile Trp Ile Leu Pro Val Gly Thr
2330 2335 2340

Arg Phe Ser Asn Gly Pro Gln Ser Tyr Gln Tyr Leu Ile Ala Ser
2345 2350 2355

Asn Gly Ser Phe Ile Ile Ser Lys Thr Thr Arg Glu Asp Ala Gly
2360 2365 2370

Lys Tyr Arg Cys Ala Ala Arg Asn Lys Val Gly Tyr Ile Glu Lys
2375 2380 2385

Leu Val Ile Leu Glu Ile Gly Gln Lys Pro Val Ile Leu Thr Tyr
2390 2395 2400

Ala Pro Gly Thr Val Lys Gly Ile Ser Gly Glu Ser Leu Ser Leu
2405 2410 2415

His Cys Val Ser Asp Gly Ile Pro Lys Pro Asn Ile Lys Trp Thr
2420 2425 2430

Met Pro Ser Gly Tyr Val Val Asp Arg Pro Gln Ile Asn Gly Lys
2435 2440 2445

Tyr Ile Leu His Asp Asn Gly Thr Leu Val Ile Lys Glu Ala Thr
2450 2455 2460

Ala Tyr Asp Arg Gly Asn Tyr Ile Cys Lys Ala Gln Asn Ser Val
2465 2470 2475

Gly His Thr Leu Ile Thr Val Pro Val Met Ile Val Ala Tyr Pro
2480 2485 2490

Pro Arg Ile Thr Asn Arg Pro Pro Arg Ser Ile Val Thr Arg Thr
2495 2500 2505

Gly Ala Ala Phe Gln Leu His Cys Val Ala Leu Gly Val Pro Lys
2510 2515 2520

Pro Glu Ile Thr Trp Glu Met Pro Asp His Ser Leu Leu Ser Thr
 2525 2530 2535

Ala Ser Lys Glu Arg Thr His Gly Ser Glu Gln Leu His Leu Gln
 2540 2545 2550

Gly Thr Leu Val Ile Gln Asn Pro Gln Thr Ser Asp Ser Gly Ile
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Tyr Lys Cys Thr Ala Lys Asn Pro Leu Gly Ser Asp Tyr Ala Ala
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Thr Tyr Ile Gln Val Ile
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 <223> "x" can be any amino acid
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 <223> "x" can be any amino acid

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Ala Val Cys Leu Val Val Thr Pro Gly Ser Arg Ala Cys Pro Arg Arg
 20 25 30

Cys Ala Cys Tyr Val Pro Thr Glu Val His Cys Thr Phe Arg Tyr Leu
 35 40 45

Thr Ser Ile Pro Asp Gly Ile Pro Ala Asn Val Glu Arg Ile Asn Leu
 50 55 60

Gly Tyr Asn Ser Leu Thr Arg Leu Thr Glu Asn Asp Phe Asp Gly Leu
 65 70 75 80

Ser Lys Leu Glu Leu Leu Met Leu His Ser Asn Gly Ile His Arg Val
85 90 95

Ser Asp Lys Thr Phe Ser Gly Leu Gln Ser Leu Gln Val Leu Lys Met
100 105 110

Ser Tyr Asn Lys Val Gln Ile Ile Arg Lys Asp Thr Phe Tyr Gly Leu
115 120 125

Gly Ser Leu Val Arg Leu His Leu Asp His Asn Asn Ile Glu Phe Ile
130 135 140

Asn Pro Glu Ala Phe Tyr Gly Leu Thr Ser Leu Arg Leu Val His Leu
145 150 155 160

Glu Gly Asn Arg Leu Thr Lys Leu His Pro Asp Thr Phe Val Ser Leu
165 170 175

Ser Tyr Leu Gln Ile Phe Lys Thr Ser Phe Ile Lys Tyr Leu Phe Leu
180 185 190

Ser Asp Asn Phe Leu Thr Ser Leu Pro Lys Glu Met Val Ser Tyr Met
195 200 205

Pro Asn Leu Glu Ser Leu Tyr Leu His Gly Asn Pro Trp Thr Cys Asp
210 215 220

Cys His Leu Lys Trp Leu Ser Glu Trp Met Gln Gly Asn Pro Asp Ile
225 230 235 240

Ile Lys Cys Lys Lys Asp Arg Ser Ser Ser Ser Pro Gln Gln Cys Pro
245 250 255

Leu Cys Met Asn Pro Arg Ile Ser Lys Gly Arg Pro Phe Ala Met Val
260 265 270

Pro Ser Gly Ala Phe Leu Cys Thr Lys Pro Thr Ile Asp Pro Ser Leu
275 280 285

Lys Ser Lys Ser Leu Val Thr Gln Glu Asp Asn Gly Ser Ala Ser Thr
290 295 300

Ser Pro Gln Asp Phe Ile Glu Pro Phe Gly Ser Leu Ser Leu Asn Met
305 310 315 320

Thr Xaa Xaa Ser Gly Asn Lys Ala Asp Met Val Cys Ser Ile Gln Lys
325 330 335

Pro Ser Arg Thr Ser Pro Thr Ala Phe Thr Glu Glu Asn Asp Tyr Ile
340 345 350

Met Leu Asn Ala Ser Phe Ser Thr Asn Leu Val Cys Ser Val Asp Tyr
355 360 365

Asn His Ile Gln Pro Val Trp Gln Leu Leu Ala Leu Tyr Ser Asp Ser
370 375 380

Pro Leu Ile Leu Glu Arg Lys Pro Gln Leu Thr Glu Thr Pro Ser Leu
385 390 395 400

Ser Ser Arg Tyr Lys Gln Val Ala Leu Arg Pro Glu Asp Ile Phe Thr
405 410 415

Ser Ile Glu Ala Asp Val Arg Ala Asp Pro Phe Trp Phe Gln Gln Glu
420 425 430

Lys Ile Val Leu Gln Leu Asn Arg Thr Ala Thr Thr Leu Ser Thr Leu
435 440 445

Gln Ile Gln Phe Ser Thr Asp Ala Gln Ile Ala Leu Pro Arg Ala Glu
450 455 460

Met Arg Ala Glu Arg Leu Lys Trp Thr Met Ile Leu Met Met Asn Asn
465 470 475 480

Pro Lys Leu Glu Arg Thr Val Leu Val Gly Gly Thr Ile Ala Leu Ser
485 490 495

Cys Pro Gly Lys Gly Asp Pro Ser Pro His Leu Glu Trp Leu Leu Ala
500 505 510

Asp Gly Ser Lys Val Arg Ala Pro Tyr Val Ser Glu Asp Gly Arg Ile
515 520 525

Leu Ile Asp Lys Asn Gly Lys Leu Glu Leu Gln Met Ala Asp Ser Phe
 530 535 540

Asp Ala Gly Leu Tyr His Cys Ile Ser Thr Asn Asp Ala Asp Ala Asp
 545 550 555 560

Val Leu Thr Tyr Arg Ile Thr Val Val Glu Pro Tyr Gly Glu Ser Thr
 565 570 575

His Asp Ser Gly Val Gln His Thr Val Val Thr Gly Glu Thr Leu Asp
 580 585 590

Leu Pro Cys Leu Ser Thr Gly Val Pro Asp Ala Ser Ile Ser Trp Ile
 595 600 605

Leu Pro Gly Asn Thr Val Phe Ser Gln Pro Ser Arg Asp Arg Gln Ile
 610 615 620

Leu Asn Asn Gly Thr Leu Arg Ile Leu Gln Val Thr Pro Lys Asp Gln
 625 630 635 640

Gly His Tyr Gln Cys Val Ala Ala Asn Pro Ser Gly Ala Asp Phe Ser
 645 650 655

Ser Phe Lys Val Ser Val Gln
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 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer used for exogenic OCP detection

<400> 26
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21

<210> 27
 <211> 23
 <212> DNA
 <213> Artificial Sequence

<220>
 <223> primer used for exogenic OCP detection

23

<400> 28

<210> 28

SECRET